Title: Long-term dynamics of *Daphnia* communities in tropical cold-water lakes on Mt. Kenya

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Summary: *Daphnia* water fleas are a key consumer of primary production in aquatic food webs, and contribute to the natural functioning and ecological integrity of freshwater ecosystems worldwide. Understanding the mechanisms that govern their geographical distribution is therefore critical to freshwater ecosystem management and conservation. This is particularly true for *Daphnia* inhabiting high-elevation lakes on the glaciated mountains of East Africa, which are rare tropical cold-water ecosystems with a distinct degree of isolation from lakes on other mountains, and highly sensitive to global climate change as glacier melting impacts their hydrology and temperature regime. To gain insight in the resilience of these *Daphnia* communities (and the aquatic ecosystem dependent on them) to ongoing climate change, this study uses paleolimnological techniques to reconstruct the long-term dynamics of *Daphnia* communities on Mt. Kenya in response to climate-driven changes in the presence and size of local glaciers. This involves the species identification and counting of fossil *Daphnia* resting eggs (ephippia) in sediment cores from two or more Mt. Kenya lakes covering between 500 and 2000 years of lake history, and comparison of the recorded temporal patterns with independent reconstructions of how glacier fluctuations affected their aquatic habitat during this period. The combined data will reveal how often *Daphnia* populations in these lakes became extinct and were later re-established or replaced by other *Daphnia* species, and the importance of local 'banks' of diapausing eggs in the lakes' bottom sediments to ensure local population persistence when new colonization through long-distance dispersal is a rare occurrence.

Keywords: freshwater ecology, Africa, zooplankton, paleoecology
Practical info: This thesis involves work with lake-sediment cores, sieving zooplankton eggs from the sediment, and identification/counting under a binocular microscope at low magnification.